Temporal Limits of Perceived Rotation in the Venetian Blind Effect: Eye Dominance Through Luminance and Contrast Modulation

By Andrew Kitt, Patrick Noonan, Joshua Dobias, and William Stine
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Based on the work of Joshua Dobias
Why is this important?

The Venetian blind effect is a 3D optical illusion

- Entertainment
- Industry
- Military
- Medical
- Advancement of science

Understanding how an optical illusion works allows us to avoid accidentally creating that illusion
Definitions

• Stereopsis
  – Ocular disparity
    • Geometric disparity (size differences)
    • Luminance (overall brightness)
    • Contrast (brightness difference from nearby elements)

• Ocular dominance
Certain models have been proposed to account for the Venetian blind illusion that suggest it is due to optics of the eyes, which reduces luminance and contrast disparities to geometric ones, and the images from the eyes process the stereoptic depth cues all the same way.

Recent research, however, has cast doubt on these models. If they were accurate, the speed with which luminance, contrast, and geometric disparities are processed should be the same, and the same eye dominant for them all.
Methodology
Stimulus
Contrast – left
Contrast – left
Contrast – right
Contrast – right
Luminance – left
Luminance – right
Luminance – right
Results
Results
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